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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,073	01/22/2002	Takashi Murakami	2001P014480	3393

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 VIENNA, VA 22182-3817

EXAMINER
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PAN, YUWEN

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/051,073		MURAKAMI, TAKASHI	
	<b>Examiner</b>		<b>Art Unit</b>	
	Yuwen Pan		2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-13, 19-22 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 14-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

*Response to Arguments*

1. Applicant's arguments, see applicant's remarks, filed 1/09/2007, with respect to the rejection(s) of claim(s) 8 under 35 U.S.C 102 (e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of JP' 110.

2. Regarding to the arguments of claims 1-7 and 9-21, the examiner respectfully disagrees. The examiner believes that the combination of AAPA, Nakamura and JP' 110 is sufficiently enough to teach or suggest a radio circuit provided in one of the housing for demodulating the radio signal from the switch. The teaching of AAPA already lies out the fundamental structure in which have two housings, one of the housing comprises antennas, radio circuit and control circuit. All these major components are interconnect via coaxial cables and flexible circuit board (see figure 6 of applicant's specification). By introduce JP' 110 reference, the utilizing of flexible circuit board, and coaxial cables for connecting both housings are reduced to one single coaxial cable to convey both radio signals and power.

Frankly speaking, it is very obvious to one ordinary skill in the art to recognize that for any wireless communication device such as wireless terminal must comprise a radio circuit in which already taught by AAPA. Obviously, the purpose of having such component is to demodulate received signal into base band signal. Based on the teaching Nakamura, one ordinary skill in the art knows one important wireless technique to combat multipath and fading is diversity. And one of the simple diversity schemes is selective diversity in which have more than one antenna at the receiving end and utilizing a switch mechanism to select a better or best radio signals between or among the antennas. Thus, at the demodulation part, there would be a better

Art Unit: 2618

or good signal to be demodulated and with lower bit error rate. Obviously, there is a controller to monitor and control the antenna signal quality in order to select the better signal (see column 3 and lines 25-39).

The concepts are very clear. Based on the teaching AAPA, JP'110 contributes the idea of having single cable to handle the signals and power conveyance between an apparatus in which comprising two housings. Furthermore, Nakamura contributes the concept of diversity to mitigate the multipath and fading.

### **DETAILED ACTION**

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-7, and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant admitted prior art (hereinafter AAPA) in view of Nakamura (US006243563B1) and Wataya (JP09046110).

Per claim 1, AAPA admitted in a prior art telephone set such as a foldable portable telephone in which comprises two housings, when the sets is in use for communication, radio signals are receive by an exclusive receiving antenna for only receiving radio signals and a transmitting and receiving antenna for transmitting and receiving radio signals, a better sensitivity one of the radio signals is detected and sent to a radio circuit via a cable (see the

Art Unit: 2618

specification page 1), the radio circuit is located at one of the portable telephone housing (see figure 6). AAPA doesn't expressly teach a switch for selecting a better detected receiving signals. Nakamura teaches that a dedicated switch circuit for selecting a better signal between a common antenna and reception dedicated antenna. It would have been obvious to one ordinary skill in the art to combine the teaching of Nakamura with AAPA such that without such switch the portable phone is hardly to select a better signal.

Combination of AAPA and Nakamura doesn't teach that the physical location of the switch could separate from the radio circuit since AAPA shows that separated paths are established between the lower housing and upper housing for signaling and power voltage. Wataya teaches one signal cable is able to carry the load of transmitting, receiving signals, control signal and power voltage. It clearly demonstrated that two electronic components are able to function normally regardless the physical location of them. For example, the switch 8 is controlled by the power supply section 9 in which is operating based on the direct current voltage supplied (battery) from the body 3 that is connect to the body where the switch located via a single coaxial cable (see the translation of Wataya 17). It would have been obvious to one ordinary skill in the art to combine the teaching of Wataya with the combination of AAPA and Nakamura such that two electronic components are able to function normally regardless the physical location (as two housings of a foldable phone) of them.

Same arguments apply, *mutatis mutandis*, to claim 2, 3, 4, and 5.

Per claims 6, and 14, Wataya further teach that the radio circuit and the cable are connected in parallel via coils and capacitors (see figure 1 and items 10, 17 and 32), and power

Art Unit: 2618

from the battery is supplied via the coil side to the radio circuit (see item 22), and a radio signal received by either one of the antennas is transmitted via the capacitor side to the radio circuit.

Per claims 7 and 15-18, Wataya further teach that the cable is a coaxial cable (see figure 1 and item 32).

Per claim 7, Wataya further teaches that the switch and the radio circuit are connected by a coaxial cable (see figure 1 and item 2).

Same arguments apply, *mutatis mutandis*, to claims 15-18.

5. Claim 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant admitted prior art (hereinafter AAPA) in view of Wataya (JP09046110).

AAPA admitted that prior art teaches a portable telephone set comprising a radio circuit for demodulating a radio signal received by antenna and transmitted via a cable (see figure 6 and item 9); and a battery for supply power to the radio circuit (item 12 and 2). AAPA doesn't teach that the battery and the radio circuit are interconnected by the cable and wherein power from the battery is supplied via the cable to the radio circuit. Wataya teaches that one single coaxial cable to convey both radio signals and power and connect two housings (see figure 1 and item 2). It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teaching of Wataya with AAPA such that it would reduce the size of the wireless terminal and save resources.

***Allowable Subject Matter***

6. Claims 9-13, and 29-22 are allowed.

7. The following is an examiner's statement of reasons for allowance: see applicant's arguments, file don 1/09/2007, pages 12 and 13.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuwen Pan whose telephone number is 571-272-7855. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anderson D. Matthew can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/051,073

Page 7

Art Unit: 2618

A handwritten signature in black ink, appearing to read 'Yuwen Pan', is written over the printed name.

Yuwen Pan  
March 21, 2007